

# TEK AMPLIFIERS

## Features

- Class AB Circuitry
- Fully 2 Ohm Stable Stereo Operation
- Military Spec. Audiophile Grade Components
- High Efficiency MOSFET Power Supplies
  - Multi-stranded power torroid
  - IRFZ44 MOSFET Transistors
- Efficient Bipolar Output Transistors
- Oversized Capacitor Bank
- Wire Free PC Board Layouts
- Gold Plated Input and Output Connectors
- Variable Highpass and Lowpass Electronic Crossovers
- Simultaneous Mono/Stereo Operation Capability
- Internally Bridgeable
- 5 Way Protection Circuitry
- Soft Start, On/Off Circuitry
- High Level Inputs
- Two Year Limited Warranty

## Specifications

MODEL:	TEK35.2	TEK50.2	TEK75.2	TEK100.2	TEK150.2	TEK35.4	TEK50.4	TEK400.1
RMS Power/4 ohms	35W x 2	50W x 2	75W x 2	100W x 2	150W x 2	35W x 4	50W x 4	200 x 1
Bridge Power, Max.	140w x 1	200W x 1	300W x 1	400W x 1	600W x 1	150W x 2	200W x 2	400 x 1
T.H.D.	0.02%	0.02%	0.02%	0.02%	0.02%	0.02%	0.02%	0.02%
Bandwidth + 3dB	5Hz-38KHz	5Hz-38KHz	5Hz-38KHz	5Hz-38KHz	5Hz-38KHz	5Hz-38KHz	5Hz-38KHz	5Hz-38KHz
Signal To Noise	>93dB	>95dB	>97dB	>97dB	>100dB	>95dB	>95dB	>94dB
Damping Factor	>150	>200	>200	>200	>300	>150	>150	>310
Separation	60dB	60dB	62dB	62dB	68dB	61dB	61dB	NA
Input Sensitivity	180mV-4V	180mV-4V	180mV-4V	180mV-4V	180mV-5V	180mV-4V	180mV-4V	265mV-5V
Input Impedance	20Kohm	20Kohm	20Kohm	20Kohm	20Kohm	20Kohm	20Kohm	20Kohm
Power Fuse	15 Amp	20 Amp	25 Amp	(2)25 Amp	(2)30 Amp	25 Amp	(2)20 Amp	(2)25 Amp
Dimensions W:	9.3 IN	9.3 IN	9.3 IN	9.3 IN	9.3 IN	9.3 IN	9.3 IN	9.3 IN
H:	2.1 IN	2.1 IN	2.1 IN	2.1 IN	2.1 IN	2.1 IN	2.1 IN	2.1 IN
L:	8.35 IN	10.32 IN	11.5 IN	13 IN	15 IN	11.5 IN	11.5 IN	11.5 IN
<b>CROSSOVER</b>								
Variable Low Pass	50-150Hz	50-150Hz	50-150Hz	50-150Hz	50-150Hz	50-150Hz	50-150Hz	50-150Hz
Variable High Pass	50-150Hz	50-150Hz	50-150Hz	50-150Hz	50-150Hz	50-150Hz	50-150Hz	50-150Hz
X-Over Slope	12dB	12dB	12dB	12dB	12dB	12dB	12dB	12dB
45hz BOOST	Yes	Yes	Yes	Yes	Yes	No	No	No

All specifications are with 12.5 volts DC. Typical output with 14.4 volts DC is 20% higher.

## IMPORTANT

Please read all instructions before installation!

The quality of installation may affect the performance and reliability of your Crossfire product. If you have any doubts or questions regarding installation, you may wish to contact your authorized Crossfire dealer. Remember to follow all wire and fuse requirements suggested in this manual. Warranty may void if proper installation technique is not used (refer to warranty section in the rear of this manual).

## MOUNTING

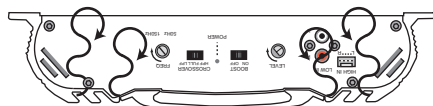
Appropriate mounting is very important for prolonged life expectancy of any amplifier. Select a location of applicable space that allows sufficient airflow and provides protection from moisture. Keep in mind that an amplifier should never be mounted upside down. Upside down mounting will compromise heat dissipation through the heatsink and will engage the thermal protection circuit much sooner. Excessive heat can shorten your amplifier's life. To maximize heat dissipation, be sure to leave at least 2.5 inches of clearance around the amplifier. Fans should be used in correspondence with an escape duct for heat when mounting the amplifier in an enclosed or restricted area.

Avoid slipping and scratching your new Crossfire amplifier by pre-drilling the mounting holes with either a 1/8" or 3mm diameter drill bit when using the screws supplied in the accessory kit. Always investigate the mounting area thoroughly for electrical wires, vacuum lines, and brake or fuel lines before you start to prevent any potentially expensive mistakes.



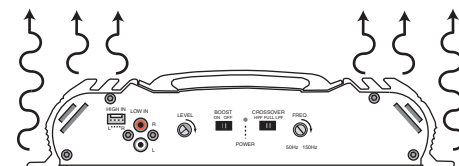
### Incorrect Mounting

Heat is trapped inside the amplifier, shortening the life of the electronic components.



### Correct Mounting

Heat is lifted from the amplifier heatsink.



**TEK AMPS**

## Power Connections

All Crossfire amplifiers are designed to work within 10.5 to 16 volts DC. Therefore, as a precaution, the vehicle's electrical system should be checked for correct voltage supply with the help of a voltmeter. First, connect the test leads of the voltmeter to the battery terminals with the ignition of the vehicle in the off position. The voltmeter should read no less than 12 volts. Next, check voltage of the battery with the engine running between 1500 and 2000 rpm. The voltmeter should now read between 13.5 and 14.5 volts. If your vehicle's electrical is not up to these specifications, we recommend having it checked by an automotive mechanic before you further the installation.

### POWER WIRE & FUSE

The proper wire size is very important for an amplifier capable of these power levels. The following are the minimum recommended fuse values and wire gauge for lengths up to 20ft.

Model	Wire	Fuse
TEK35.2	10awg.	15amp
TEK50.2	10awg.	20amp
TEK75.2	10awg.	30amp
TEK100.2	8awg.	50amp
TEK150.2	8awg.	60amp
TEK50.4	10awg.	40amp
TEK35.4	10awg.	25amp
TEK400.1	8awg.	50amp

### POWER

Power wire needs be connected directly to the battery using the wire requirements listed above. Never use the fuse box or any other wire as a source for the power for an amplifier. Before you start, choose the easiest path to run the wire from the battery to the amplifier. Generally, try to keep the power wire on the driver's side of the vehicle (See Signal Inputs & Outputs for explanation). Follow the rules below for running the power cable through the vehicle:

1. Use grommets when passing the power wire through any metal wall of the vehicle.
2. Avoid sharp corners or sharp body parts that may easily cut through the insulation on the wire.
3. Avoid running the power wire over engine components and near heater cores.
4. Avoid the gas, brake and clutch pedals and their mechanisms.
5. Use an inline fuse at the battery to eliminate the risk of a fire caused by a short in your power wire.
6. Connect the fuse holder as close to the battery positive as possible.

Once the wire has been run, connect the wire to the battery terminal. As a precaution, leave the fuse out until all other wire connections are made.

### GROUND

The wire used for ground should be of the same gauge as the power wire. Just make sure that you choose a different color (generally black) so that you don't reverse the polarity at the amplifier terminals. Follow the rules below for connecting the ground wire properly:

1. Avoid using seat bolts, seatbelt bolts, and fender wells for ground.
2. Choose a metal area close to the amplifier that appears to be a good source of ground, such as the floor.
3. Investigate the area you wish to use for electrical wires, vacuum lines, and brake or fuel lines.

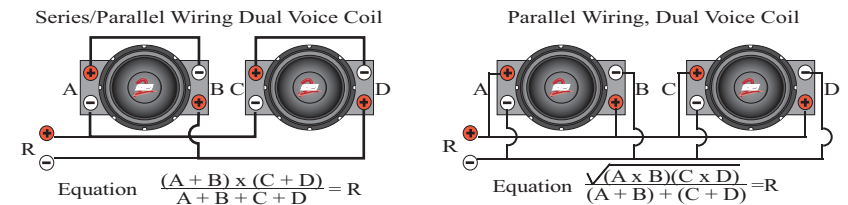
### Directions for connecting the ground wire to the vehicle:

1. Find a nut and bolt to fit the ring terminal you have chosen.
2. Drill a hole just large enough for the bolt to fit through at the source of ground.
3. Use either a wire brush or sandpaper to eliminate unwanted paint around the hole you have drilled as to supply a better contact for your ground.
4. Terminate the ground wire to the ring terminal and attach it to the bare metal using the nut and bolt. It is very important for this connection to be solid.
5. Spread silicon over the screw and bare metal to prevent rust and possible water leaks.

In between the power and ground of the amplifier is a remote turn-on terminal. This terminal must be connected to a switched +12 volt source to make the amplifier operational. Typically, remote turn-on leads are provided at the head unit that will turn on and off the amplifier in correspondence with the source. This means you will most likely have to remove the head unit from the dash to find the source +12V output wire.

Use a minimum of 18-gauge wire, preferably blue, to connect the amplifier to the head unit. If possible, route this wire along side of the power wire using the same precautions. Connect the remote output of the head unit to the wire using a barrel connector or a mating terminal as required by the source unit. You can solder these wires together, but be sure to use heat-shrink over the connection. Do not place the radio back into the dash yet.

All TEK amplifiers reach their potential output into a 2 ohm stereo or 4 ohm mono load. Any lower impedance can send the amplifier into current protection and possibly damage the circuitry. To prevent damage, use the following formulas to help you figure out the load you are placing on your amplifier. If you have any difficulties, please contact your local Crossfire dealer or Crossfire's Technical assistance at 562-483-8111.



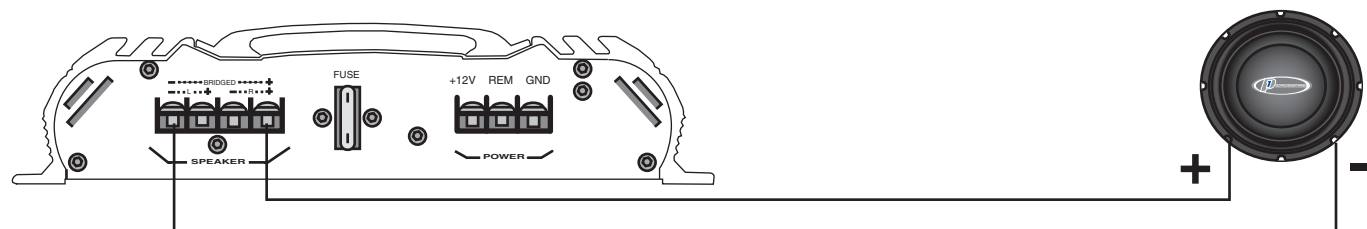
Always choose speaker wire wisely. Make sure that the wire is appropriate for the speaker you are applying it to. It is highly recommended not to use anything smaller than 16awg. Consult your dealer.

As with the power wires, use caution around sharp corners or body parts that may easily cut through the insulation on the wire. If running into the doors, it is important to use a protective boot in the door jam to protect the wire from being pinched as well as keeping water or moisture from entering the vehicle. Use the factory boots whenever possible. And always make sure the wire is out of the way of the window track.

To connect the wire to the speaker, strip off approximately 1/2" inch (12mm) of the insulation and terminate the wires using insulated speaker terminals (not supplied) or by soldering the connection to the loudspeaker. Be sure that the polarity at the loudspeaker is correct.

● ● ● ● ● ● ● ● ● ● ● ● ● ● ● **Single Channel Operation (bridged)** ● ● ● ● ● ● ● ● ● ● ● ● ● ● ●

TEK35.2  
TEK50.2  
TEK75.2  
TEK100.2  
TEK150.2

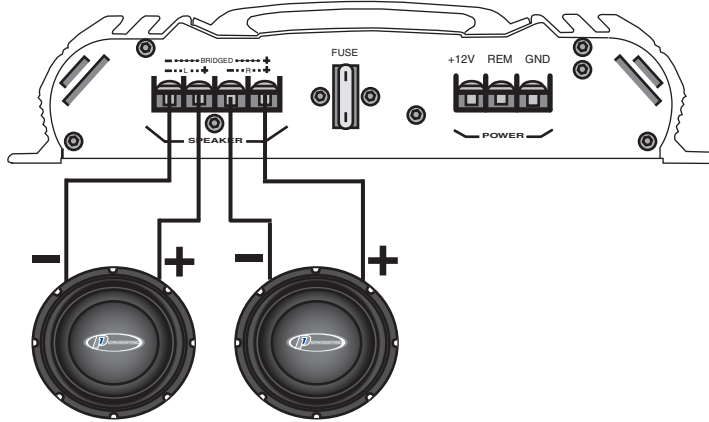


## TWO CHANNEL AMPLIFIERS

● ● ● ● ● ● ● Two Channel Operation (stereo) ● ● ● ● ● ● ● ● ● ● ● ● Three Channel Operation (stereo/mono) ● ● ● ● ● ● ●

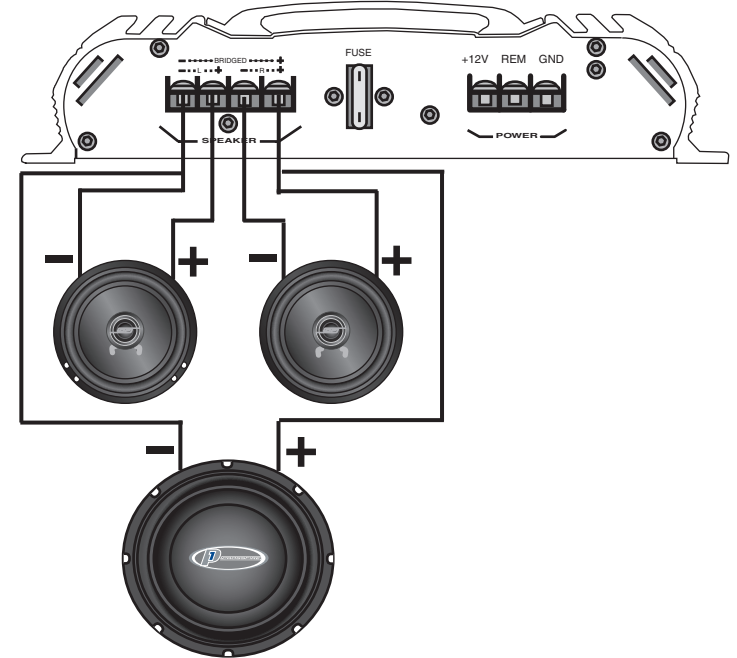
### MODELS

TEK35.2  
TEK50.2  
TEK75.2  
TEK100.2  
TEK150.2



### MODELS

TEK35.2  
TEK50.2  
TEK75.2  
TEK100.2  
TEK150.2

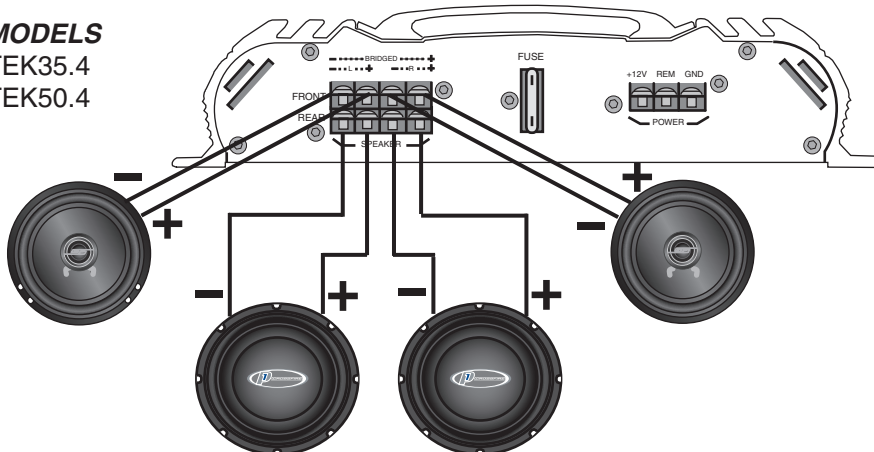


## FOUR CHANNEL AMPLIFIERS

● ● ● ● ● ● ● Four Channel Operation (stereo) ● ● ● ● ● ● ● ● ● ● ● ● Three Channel Operation (stereo & mono) ● ● ● ● ● ● ●

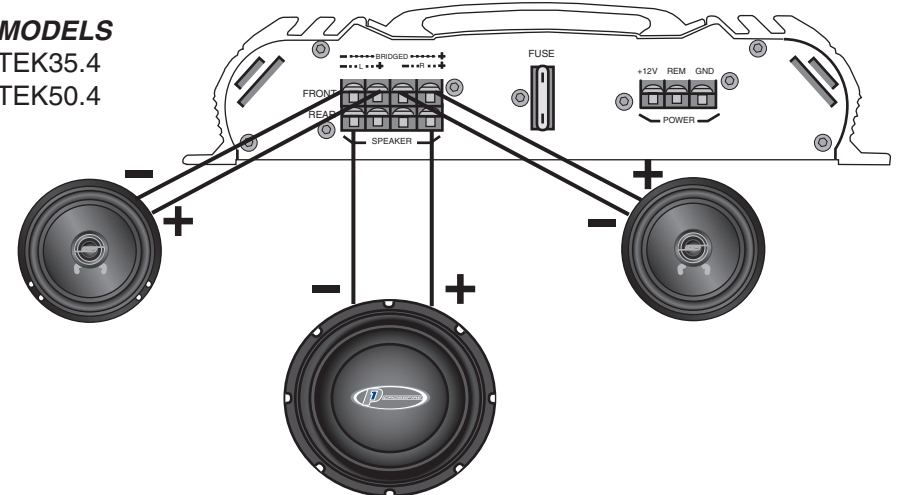
### MODELS

TEK35.4  
TEK50.4



### MODELS

TEK35.4  
TEK50.4



## CONNECTING THE WIRES

At this point, the power, ground, and remote wires should be run to the general location of where the amplifier is to be mounted. If the wires are to be hidden under the carpet, you now need to cut a slit for them to come through. To do this, place the amplifier in the location it is to be mounted to verify where the slits need to be. Make sure that there will not be a conflict with the mounting of the amplifier and the wires. Pull the wires through the slit to the terminals leaving approximately 6" (150mm) of slack and cut the wires to an equal length. Located the spade connectors supplied with the amplifier. Strip approximately 1/2" inch (12mm) of insulation from the end of each wire. Crimp the spade connectors onto the stripped end of the wire. Loosen the terminal screws on the amplifier. Insert the wires into the proper terminals and tighten the screws securely. Check your connections by giving the wires a slight tug.

## SIGNAL INPUTS AND OUTPUTS

Getting a clear signal from the head unit to the amplifier is very important. To achieve this, the proper signal cables (RCA style) must be used. Estimate the length of the cables necessary. Take note that the signal cable manufacturers will probably not have the exact length necessary for your vehicle. If you are in between sizes, purchase the slightly longer cable. You can always hide the extra wire.

Be aware of the differences in cable. Better RCA's usually have multiple layers of shielding and/or twisted pair wiring for better noise rejection. Ask your local dealer for his recommendation.

## LINE LEVEL INPUTS

Car environments are notorious for poorly insulated wires. This means that hiss, engine noise, and electrical noise can easily be picked up through RCA cables if ran incorrectly. To avoid inducing noise into the system, run the RCA's away from large wire looms and electric fans if possible. And always make sure to position your signal cables away from the power wire, preferably on the opposite side of the vehicle. As with the power wire, use caution around sharp corners or body parts that may easily cut through the cables.

When connecting the signal cables, check the balance when connecting them to the source unit and the amplifier. The cables should be marked: red is right and black or white is usually left.

Once you have finished connecting the signal cables to the source unit, slide the unit back in to the dash location. Make sure that the unit is in tightly.

## HIGH LEVEL INPUTS

Use high level inputs only if your current head unit does not have low level inputs. These inputs may be tapped to the closest left and right speaker wires available. Please see diagram for connections.

## LEVEL CONTROL

Next to the preamp inputs on the side panel of the amplifier is the level control, commonly referred to as the gain. The gain allows you to match the output level of your source unit or signal processor to the input level of the amplifier. Matching the input can be accomplished in three simple steps:

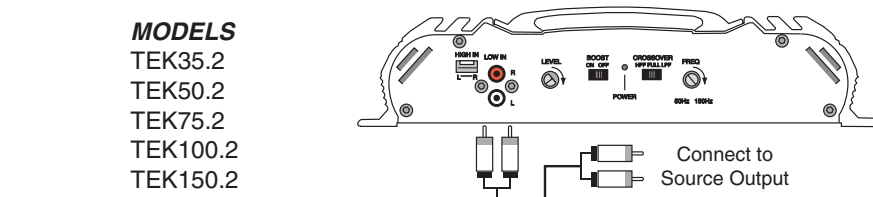
1. Turn gain (level) control to minimum.
2. Turn on the source unit and adjust to 2/3 of max volume while playing music.
3. Adjust the gain control until desired, maximum volume is achieved without audible distortion

Remember that the gain control is not a volume knob. Ignoring the three steps above may leave you with damaged speakers and possibly a damaged amplifier.



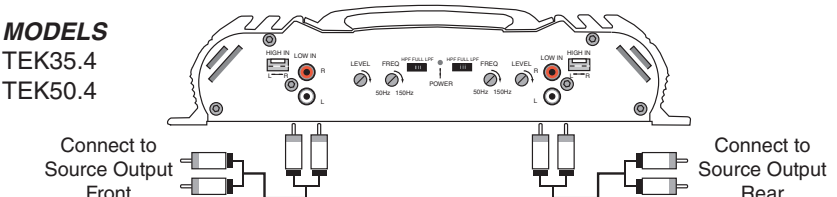
## MODELS

TEK35.2  
TEK50.2  
TEK75.2  
TEK100.2  
TEK150.2

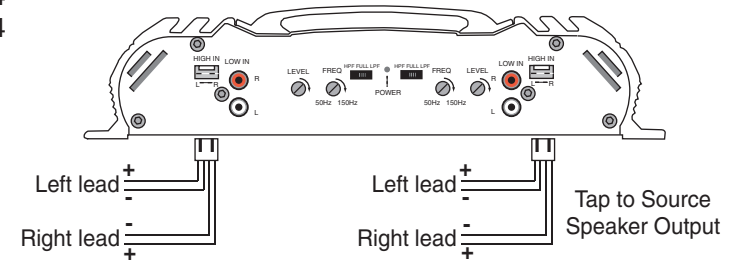
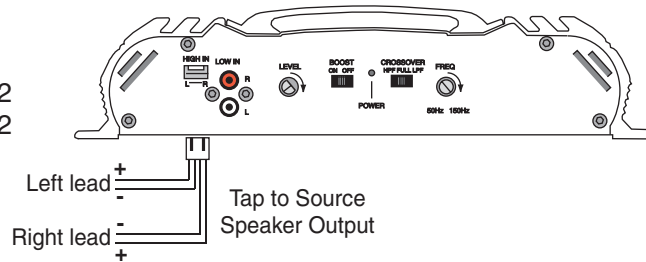


## MODELS

TEK35.4  
TEK50.4



High Level Inputs



## PREAMP FEATURES

On the side panel of your amplifier is a potentiometer marked 50Hz - 150Hz. This controls the relative crossover point for the amplifier. To apply the crossover feature, locate the switch on the same side panel that reads HPF/Full/LPF. For highpass applications, such as component sets or coaxials, choose HPF. For lowpass applications, such as subwoofers, choose LPF. If you are looking for a full range application, place the switch on FULL. Full will override the crossover completely.

Note: The four channel amplifiers will have two sets of crossover controls, one for front and rear.

Listed below are recommended crossover points for various size speakers. These are only guidelines. Actual crossover points recommend by the speaker manufacturers may vary.

Speaker size	Crossover recommendation
4" (100mm) component/coaxial	HPF 130Hz - 150Hz
5.25" (130mm) component/coaxial	HPF 80Hz - 110Hz
6" (160mm) component/coaxial	HPF 70Hz - 100Hz
8" (200mm) woofer	LPF 90Hz - 120Hz
10" (250mm) subwoofer	LPF 70Hz - 100Hz
12" (300mm) subwoofer	LPF 70Hz - 100Hz
15" (380mm) subwoofer	LPF 50Hz - 80Hz

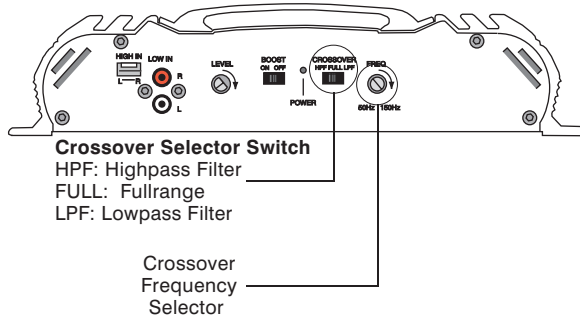
If your system is lacking low bass response, locate the boost switch next to the crossover. By placing this switch in the on position, 6dB of boost centering around 45Hz will be added. In the OFF position no boost is added to the output signal. This boost switch is available on all Crossfire TEK amplifiers with the exception of the TEK35.4, TEK50.4, TEK55.5, and the TEK400.1. Crossfire highly recommends using this feature only on amplifiers powering subwoofers.



## CROSSOVER

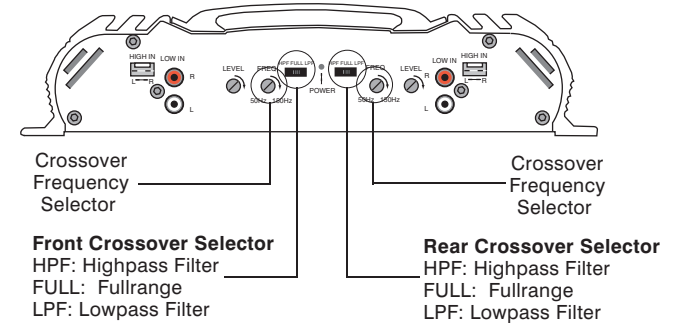
### MODELS

TEK35.2  
TEK50.2  
TEK75.2  
TEK100.2  
TEK150.2



### MODELS

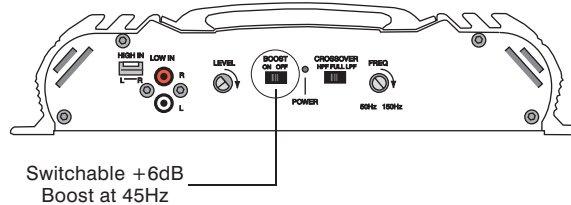
TEK35.4  
TEK50.4



## BOOST

### MODELS

TEK35.2  
TEK50.2  
TEK75.2  
TEK100.2  
TEK150.2



## TEK400.1 MONOBLOCK

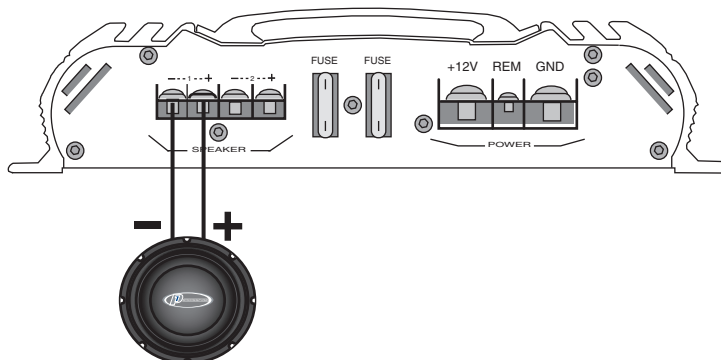
### OPERATION

The Crossfire TEK400.1 is a mono-block amplifier. Unlike other Crossfire TEK amplifiers, this amplifier operates as a single channel, therefore the amplifier cannot be bridged. Do not be fooled by the two sets of speaker outputs. Two outputs are provided strictly for convenience and are paralleled internally on the circuit board of the amplifier. This means that if both outputs are used with one driver each, the amplifier sees the same load as if the same two drivers are connected to only one output terminal. See diagram below.

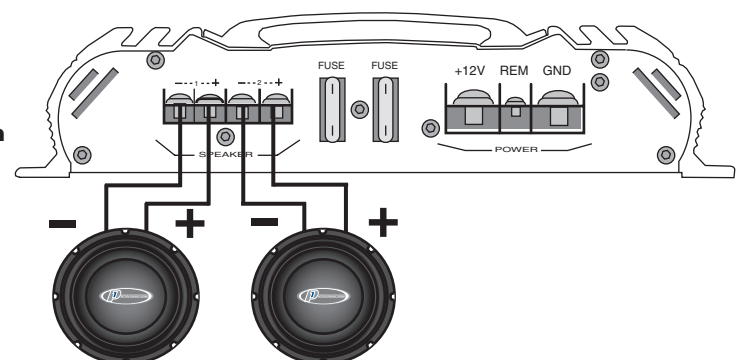
### LOAD

The TEK400.1 will reach its potential output into a 2ohm load. However, the TEK400.1 requires a minimum impedance of 2 ohms to operate trouble free. Any impedance lower than 2 ohms can send the amplifier into current protection and possibly damage the circuitry. Please use the chart on page 8 for formulas to achieve a 2ohm load.

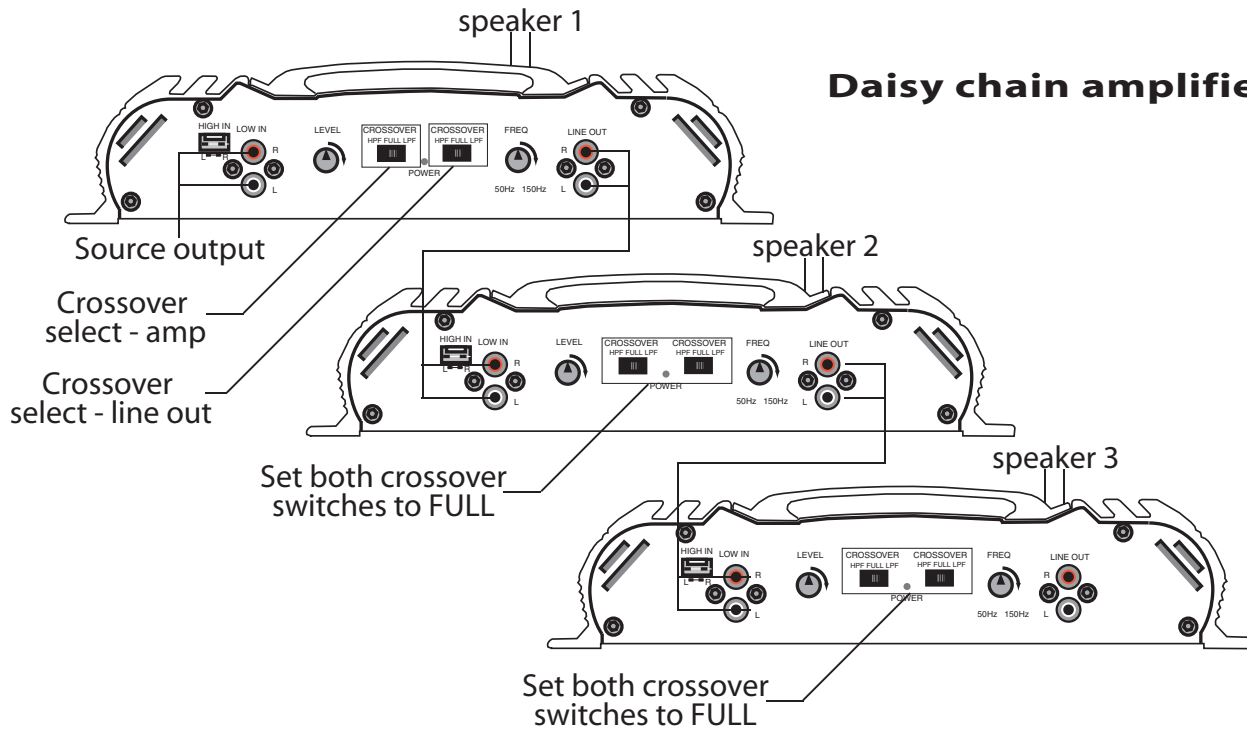
### Single speaker operation



### Two speaker operation



## Daisy chain amplifiers



## Two way system

